DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
FEDERAL SECURITY AGENCY
PUBLIC HEALTH SERVICE

IN REPLYING, ADDRESS THE

Communicable Disease Center
Enteric Bacteriology Laboratories
P. O. Box 185
Chamblee, Georgia

July 6, 1954

Dr. Joshua Lederberg
Department of Genetics
The University of Wisconsin
Madison 6, Wisconsin

Dear Dr. Lederberg:

Your letter of June 12 to Dr. Board concerning the disposition made of carriers of S. paratyphi B and S. typhi murium was referred first to the Epidemiology Section and then to this office for reply.

It is noted that the questions which you raise are much the same as those contained in a recent letter to me. Inquiry at the Epidemiology Branch revealed that the information which you wanted is not available at CDC. Dr. Meyers, Assistant Chief of the Epidemiology Branch, informed me that he tried to gather information of this sort concerning typhoid carriers. He found it almost impossible to summarize the information since each state had slightly different methods of handling the typhoid carrier problem. However, the general provisions in all states were very similar. Apparently the method of dealing with carriers of S. paratyphi A and S. paratyphi B is even more confused. It is my belief that in the majority of instances they would be handled in the same way that the individual states deal with typhoid carriers. I am sorry not to be able to make any more definite remarks concerning your question.

It is my belief that a carrier of S. paratyphi B should be dealt with in a much more stringent manner than a carrier of S. typhi murium. i.e. firmer proof of the cessation of the carrier state should be demanded. Granted that one may exchange antigens in the two organisms so that it is impossible to distinguish them without resorting to the identification of minor fractions, we have no proof of how often this change occurs in nature. Further, it is known through the accumulation of knowledge over many years that S. paratyphi B produces outbreaks of enteric fever, whereas S. typhi murium does not produce such illnesses. Individual cases of S. typhi murium infection may follow the course of enteric fever but the organism does not cause large outbreaks of a disease clinically resembling typhoid fever nor does it have the tendency to invade the blood and produce permanent carriers as does S. paratyphi B.

Until such time as it is shown that transduction of antigens is occurring in nature and that outbreaks of enteric fever are being caused by organisms which resemble S. typhi murium, I believe it is justifiable to treat carriers of the two organisms in different manners.

Among the many thousands of cultures of S. typhi which have been examined none has been found in which antigens had been transduced yet the opportunity for such transduction should be greater in S. typhi than in any other organisms since it probably is more constantly present in the intestine of a large number of people (carriers) than any other single type, and thus has more opportunity to be in contact with other Salmonella types which are transient residents. From this I believe one should be extremely conservative concerning the frequence of transduction of antigens in nature.

With kind regards, I am

For the Officer-in-Charge, Bacteriology Section

Sincerely yours,

Philip R. Edwards, Ph. D.
Bacteriologist-in-Charge
Enteric Bacteriology Unit

cc: Drs. F. Kauffmann and
I. L. Meyers

Some time ago Bitz wrote me as follows:
"Perhaps all Salmonella types have arisen by transduction ?" He is a most amazing man. One never knows what to expect next.

E.